

CLAIMS

1. A pressure sensitive adhesive article, comprising:

a pressure sensitive adhesive layer mainly formed of polyurethane resin; and

a releasing agent layer mainly formed of polyolefin resin, which is adhered to the pressure sensitive adhesive layer, wherein wetting tension at the surface of the releasing agent layer which faces the pressure sensitive adhesive layer measured according to the wetting tension test defined by JIS K 6768 is equal to or less than 33 mN/m.

2. A pressure sensitive adhesive article, comprising:

a pressure sensitive adhesive layer mainly formed of polyurethane resin; and

a releasing agent layer mainly formed of polyolefin resin having a density of equal to or less than 0.94 g/cm^3 , which is adhered to the pressure sensitive adhesive layer.

3. A pressure sensitive adhesive article, comprising:

a pressure sensitive adhesive layer mainly formed of polyurethane resin; and

a releasing agent layer mainly formed of polyolefin resin having a density of equal to or less than 0.94 g/cm^3 , which is adhered to the pressure sensitive adhesive layer, wherein wetting tension at the surface of the releasing agent layer which faces the pressure sensitive adhesive layer measured according to the wetting tension test defined by JIS K 6768 is equal to or less than 33 mN/m.

4. The pressure sensitive adhesive article as claimed in claim 1, wherein the pressure sensitive adhesive article is a pressure sensitive adhesive sheet with a release sheet, which comprises:

a pressure sensitive adhesive sheet including a base material on which the pressure sensitive adhesive layer is provided, and

a release sheet including a release sheet base material on which the releasing agent layer is provided, the release sheet being removably attached to the pressure sensitive adhesive layer of the pressure sensitive adhesive sheet through the releasing agent layer thereof.

5. The pressure sensitive adhesive article as claimed in claim 4, wherein even if the pressure sensitive adhesive sheet having the pressure sensitive adhesive layer contains silicone compound, the content thereof is 500 g/m² or less.

6. The pressure sensitive adhesive article as claimed in claim 4, wherein when the pressure sensitive adhesive sheet is used after it has been peeled off from the release sheet, the pressure sensitive adhesive sheet may generate a gas at a temperature of 85°C for 30 minutes, but the amount of the gas generated from the pressure sensitive adhesive sheet is equal to or less than 20 mg/m².

7. The pressure sensitive adhesive article as claimed in claim 4, wherein when the pressure sensitive adhesive sheet is used after it has been peeled off from the release sheet, the pressure sensitive adhesive sheet contains ions of NO_x⁻, Cl⁻, PO₄³⁻, F⁻, K⁺, Na⁺ and Ca²⁺, but the sum of amounts of these ions is equal to or less than 20 mg/m².

8. The pressure sensitive adhesive article as claimed in claim 4, wherein the base material of the pressure sensitive adhesive sheet is formed from a plastic film or a lint-free paper.

9. The pressure sensitive adhesive article as claimed in claim 4, wherein the pressure sensitive adhesive sheet further comprises at least one antistatic layer provided on one or both of the surfaces of the base material.

10. The pressure sensitive adhesive article as claimed in claim 1, wherein the pressure sensitive adhesive article is a pressure sensitive adhesive tape which comprises a base material having both surfaces, the pressure sensitive adhesive layer provided on one of the surfaces of the base material and the releasing agent layer provided on the other surface of the base material, wherein the pressure sensitive adhesive tape being wound in a roll form until it is used.

11. The pressure sensitive adhesive article as claimed in claim 10, wherein even if the pressure sensitive adhesive tape having the pressure sensitive adhesive layer contains silicone compound, the content thereof is 500 g/m² or less.

12. The pressure sensitive adhesive article as claimed in claim 10, wherein when the pressure sensitive adhesive tape is used, the pressure sensitive adhesive tape may generate a gas at a temperature of 85°C for

30 minutes, but the amount of the gas generated from the pressure sensitive adhesive tape is equal to or less than 20 mg/m^2 .

13. The pressure sensitive adhesive article as claimed in claim 10,
5 wherein when the pressure sensitive adhesive tape is used, the pressure sensitive adhesive tape contains ions of NO_x^- , Cl^- , PO_4^{3-} , F^- , K^+ , Na^+ and Ca^{2+} , but the sum of amounts of these ions is equal to or less than 20 mg/m^2 .

10 14. The pressure sensitive adhesive article as claimed in claim 10, wherein the base material of the pressure sensitive adhesive tape is formed from a plastic film or a lint-free paper.

15 15. The pressure sensitive adhesive article as claimed in claim 10, wherein the pressure sensitive adhesive tape further comprises at least one antistatic layer provided on one or both of the surfaces of the base material.

TABLE 1

	Pressure sensitive adhesive layer	Releasing agent layer			Temperature of material when forming releasing agent layer (°C)	Wetting tension at releasing agent layer (mN/m)
		Constituent material	Density of used resin (g/cm ³)	Number average molecular weight of used resin		
Example 1	Urethane-urea	Ethylene-propylene copolymer	0.870	100,000	260	31
		Polyethylene	0.916	150,000		
Example 2	Urethane	Ethylene-propylene copolymer	0.870	100,000	260	31
		Polyethylene	0.916	150,000		
Example 3	Urethane	Polyethylene	0.916	150,000	260	31
Example 4	Urethane	Polyethylene	0.912	34,000	260	31
Example 5	Urethane	Polyethylene	0.936	120,000	260	32
Example 6	Urethane	Polyethylene	0.948	89,000	260	33
Example 7	Urethane	Polypropylene	0.890	41,000	260	31
Example 8	Urethane	Ethylene-propylene copolymer	0.870	100,000	260	31
Example 9	Urethane	Ethylene α -olefin copolymer	0.900	25,000	260	31
Example 10	Urethane	Ethylene-propylene copolymer	0.870	100,000	260	31
		Polyethylene	0.916	150,000		
Example 11	Urethane	Ethylene-propylene copolymer	0.870	100,000	300	34
		Polyethylene	0.916	150,000		

TABLE 1

	Pressure sensitive adhesive layer	Releasing agent layer			Temperature of material when forming releasing agent layer (°C)	Wetting tension at releasing agent layer (mN/m)
	Constituent material	Constituent material	Density of used resin (g/cm ³)	Number average molecular weight of used resin		
Comp. Ex. 1	Acryl	Ethylene-propylene copolymer	0.870	100,000	260	31
		Polyethylene	0.916	150,000		
Comp. Ex. 2	Acryl	Silicone	-	-	-	less than 31
Comp. Ex. 3	Urethane	Polyethylene	0.948	89,000	320	36

TABLE 2

	Writability on releasing agent layer	Slippage on releasing agent layer	Release force at 0.3 m/min (mN/50mm)	Amount of silicone ($\mu\text{g}/\text{m}^2$)	Amount of ions	Amount of gas generated	Degree of residual adhesive	Count of particles generated (particles /L)	Suitability for labeling machine
Example 1	A	A	90	ND	ND	ND	A	0	A
Example 2	A	A	90	ND	ND	ND	A	0	A
Example 3	A	A	120	ND	ND	ND	A	0	A
Example 4	A	A	110	ND	ND	ND	A	0	A
Example 5	A	A	130	ND	ND	ND	A	0	A
Example 6	A	A	150	ND	ND	ND	A	0	B
Example 7	A	A	140	ND	ND	ND	A	0	A
Example 8	A	A	110	ND	ND	ND	A	0	A
Example 9	A	A	120	ND	ND	ND	A	0	A
Example 10	A	A	90	ND	ND	ND	A	0	A
Example 11	A	A	190	ND	ND	ND	A	0	B
Comp. Ex. 1	A	A	200	ND	ND	ND	D	0	B
Comp. Ex. 2	B	B	100	6,500	ND	ND	D	1,200	A
Comp. Ex. 3	A	A	520	ND	ND	ND	A	0	C

TABLE 3

	Surface resistivity (Ω)	Voltage of electrification at peeling-off (kV)
Example 10	1.0×10^5	ND
Comp. Ex. 2	1.0×10^{14}	5